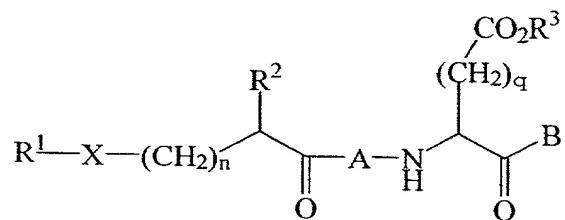


CLAIMS

We claim:

1. A compound of the following formula:



Formula I

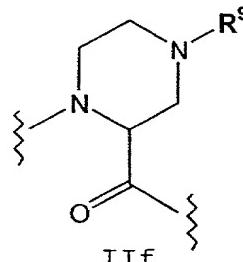
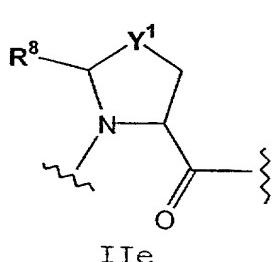
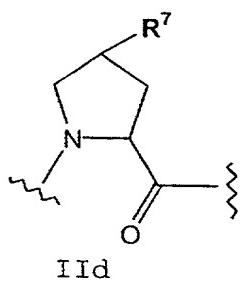
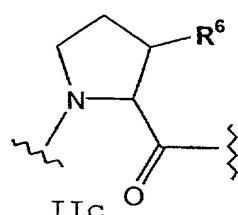
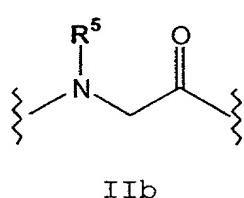
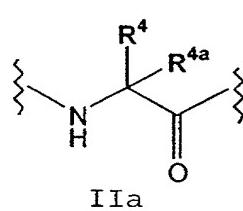
wherein:

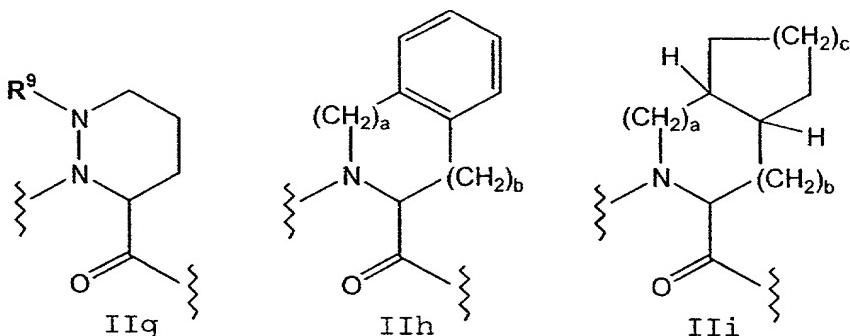
n is 0, 1 or 2;

q is 1 or 2;

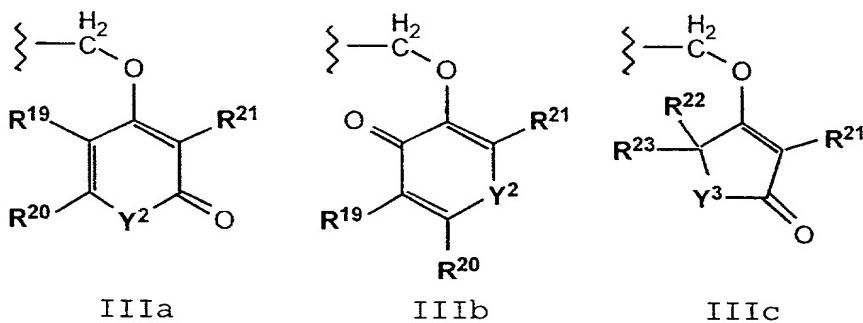
X is CH₂, C=O, O, S, NH, C=ONH or CH₂OC=ONH;

A is a natural or unnatural amino acid of Formula IIa-i:





B is a hydrogen atom, a deuterium atom, C_{1-10} straight chain or branched alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, substituted naphthyl, 2-benzoxazolyl, substituted 2-oxazolyl, $(\text{CH}_2)_m$ cycloalkyl, $(\text{CH}_2)_m$ phenyl, $(\text{CH}_2)_m$ (substituted phenyl), $(\text{CH}_2)_m$ (1 or 2-naphthyl), $(\text{CH}_2)_m$ heteroaryl, halomethyl, CO_2R^{13} , $\text{CONR}^{14}\text{R}^{15}$, $\text{CH}_2\text{ZR}^{16}$, $\text{CH}_2\text{OCO(aryl)}$, $\text{CH}_2\text{OCO}(\text{substituted aryl})$, $\text{CH}_2\text{OCO(heteroaryl)}$, $\text{CH}_2\text{OCO}(\text{substituted heteroaryl})$, or $\text{CH}_2\text{OPO}(\text{R}^{17})\text{R}^{18}$, where Z is an oxygen or a sulfur atom, or B is a group of the Formula IIIa-c:



R^1 is phenyl, substituted phenyl, naphthyl, substituted naphthyl, heteroaryl, or substituted heteroaryl;

R^2 is hydrogen, alkyl, cycloalkyl, phenyl, substituted phenyl, $(\text{CH}_2)_m\text{NH}_2$, $(\text{CH}_2)_m\text{NHCOR}^{10}$, $(\text{CH}_2)_m\text{N}(\text{C}=\text{NH})\text{NH}_2$, $(\text{CH}_2)_p\text{CO}_2\text{R}^3$, $(\text{CH}_2)_p\text{OR}^{11}$, $(\text{CH}_2)_p\text{SR}^{12}$, $(\text{CH}_2)_m$ cycloalkyl, $(\text{CH}_2)_m$ phenyl, $(\text{CH}_2)_m$ (substituted phenyl), $(\text{CH}_2)_m$ (1 or 2-naphthyl), or $(\text{CH}_2)_m$ heteroaryl, wherein heteroaryl includes (but is not limited to) pyridyl, thienyl, furyl, thiazolyl, imidazolyl, pyrazolyl, isoxazolyl, pyrazinyl, pyrimidyl, triazinyl, tetrazolyl, and indolyl;

R³ is hydrogen, alkyl, cycloalkyl, (cycloalkyl)alkyl, phenylalkyl, or substituted phenylalkyl;

and wherein

R⁴ is alkyl, cycloalkyl, phenyl, substituted phenyl, (CH₂)_mNH₂, (CH₂)_mNHCOR¹⁰, (CH₂)_mN(C=NH)NH₂, (CH₂)_pCO₂R³, (CH₂)_pOR¹¹, (CH₂)_pSR¹², (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), (CH₂)_m(1 or 2-naphthyl), or (CH₂)_mheteroaryl, wherein heteroaryl includes (but is not limited to) pyridyl, thienyl, furyl, thiazolyl, imidazolyl, pyrazolyl, isoxazolyl, pyrazinyl, pyrimidyl, triazinyl, tetrazolyl, and indolyl;

R^{4a} is hydrogen, or methyl, or R⁴ and R^{4a} taken together are -(CH₂)_d- where d is an integer from 2 to 6;

R⁵ is phenyl, substituted phenyl, (CH₂)_pphenyl, (CH₂)_p(substituted phenyl), cycloalkyl, or benzofused cycloalkyl;

R⁶ is hydrogen, alkyl, cycloalkyl, phenyl, substituted phenyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R⁷ is hydrogen, fluorine, oxo, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), (CH₂)_m(1 or 2-naphthyl), OR¹¹, SR¹², or NHCOR¹⁰;

R⁸ is hydrogen, oxo, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R⁹ is alkyl, cycloalkyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), (CH₂)_m(1 or 2-naphthyl), or COR¹⁰;

R¹⁰ is hydrogen, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), (CH₂)_m(1 or 2-naphthyl), OR¹³, or NR¹⁴R¹⁵;

R¹¹ is hydrogen, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R¹² is alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R¹³ is alkyl, cycloalkyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R¹⁴ is hydrogen, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, substituted naphthyl, (CH₂)_mcycloalkyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), or (CH₂)_m(1 or 2-naphthyl);

R¹⁵ is hydrogen or alkyl; or

R¹⁴ and R¹⁵ taken together form a five, six or seven membered carbocyclic or heterocyclic ring, such as morpholine or N-substituted piperazine;

R¹⁶ is phenyl, substituted phenyl, naphthyl, substituted naphthyl, heteroaryl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), (CH₂)_m(1 or 2-naphthyl), or (CH₂)_mheteroaryl;

R¹⁷ and R¹⁸ are independently alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, or phenylalkyl, substituted phenylalkyl, or (cycloalkyl)alkyl;

R¹⁹ and R²⁰ are independently hydrogen, alkyl, phenyl, substituted phenyl, (CH₂)_mphenyl, or (CH₂)_m(substituted phenyl), or R¹⁹ and R²⁰ taken together are -(CH=CH)₂-;

R²¹ is hydrogen, alkyl, phenyl, substituted phenyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl);

R²², R²³ and R²⁴ are independently hydrogen or alkyl;

Y¹ is CH₂, (CH₂)₂, (CH₂)₃, or S;

Y^2 is O or NR²⁴;

Y^3 is CH₂, O, or NR²⁴;

a is 0 or 1 and b is 1 or 2, provided that when a is 1 then b is 1;

c is 1 or 2, provided that when c is 1 then a is 0 and b is 1;

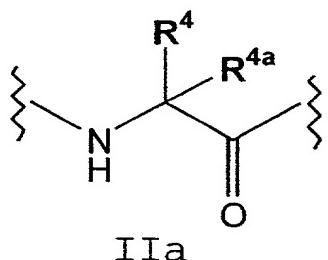
m is 1, 2, 3 or 4; and

p is 1 or 2;

or a pharmaceutically acceptable salt thereof.

2. The compound of claim 1 where X is oxygen.
3. The compound of claim 1 where X is sulfur.
4. The compound of claim 1 where X is NH.
5. The compound of claim 1 where X is CH₂.
6. The compound of claim 1 where X is C=O.
7. The compound of claim 1 where X is C=ONH or CH₂OC=ONH.
8. The compound of claim 1 wherein q is 1.
9. The compound of claim 1 wherein q is 2.

10. The compound of claim 1 wherein A is

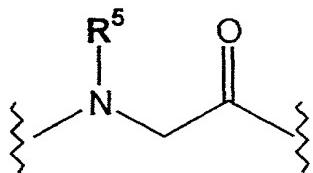


11. The compound of claim 10 wherein

R⁴ is lower alkyl, cycloalkyl, phenyl, substituted phenyl, (CH₂)_nNH₂, (CH₂)_mOR¹⁰, (CH₂)_mSR¹¹, (CH₂)_ncycloalkyl, (CH₂)_nphenyl, (CH₂)_n(substituted phenyl), or (CH₂)_n(1 or 2-naphthyl); and

R^{4a} is hydrogen.

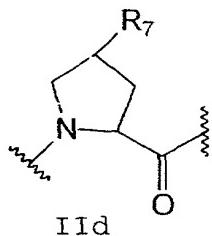
12. The compound of claim 1 wherein A is



IIIb

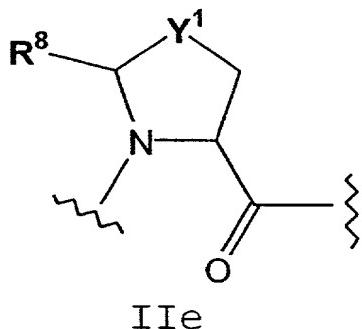
13. The compound of claim 12 wherein R⁵ is phenyl, substituted phenyl, (CH₂)_mphenyl, (CH₂)_m(substituted phenyl), cycloalkyl, or 2-indanyl.

14. The compound of claim 1 wherein A is



15. The compound of claim 14 wherein R⁷ is hydrogen, fluorine, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH₂)_ncycloalkyl, (CH₂)_nphenyl, (CH₂)_n(substituted phenyl), (CH₂)_n(1 or 2-naphthyl), OR¹⁰, or SR¹¹.

16. The compound of claim 1 wherein A is

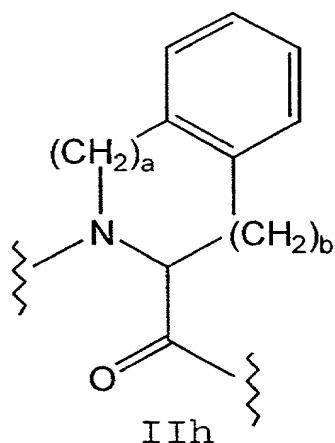


17. The compound of claim 16 wherein

R^8 is hydrogen, oxo, cycloalkyl, phenyl, substituted phenyl, or naphthyl; and

Y^1 is CH_2 , $(CH_2)_2$, $(CH_2)_3$, or S.

18. The compound of claim 1 wherein A is



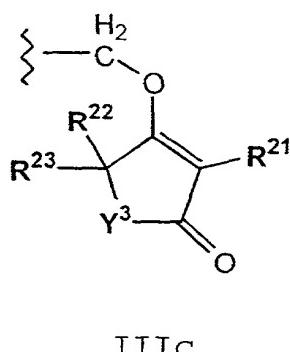
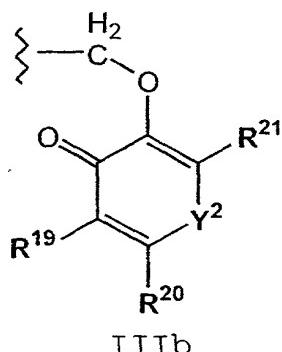
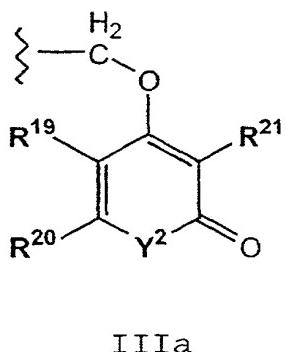
19. The compound of claim 18 wherein a is 0.

20. The compound of claim 1 wherein

B is hydrogen, 2-benzoxazolyl, substituted 2-oxazolyl, $\text{CH}_2\text{ZR}^{15}$, $\text{CH}_2\text{OCO}(\text{aryl})$, or $\text{CH}_2\text{OPO}(\text{R}^{16})\text{R}^{17}$; and

Z is O or S.

21. The compound of claim 1 wherein B is



22. The compound of claim 21 wherein R^{19} and R^{20} are independently hydrogen, alkyl, or phenyl, or wherein R^{19} and R^{20} taken together are $-(\text{CH}=\text{CH})_2-$.

23. The compound of claim 1 wherein

X is O or NH;

n is 0 or 1;

q is 1;

R^1 is substituted phenyl, naphthyl, or substituted naphthyl;

R^2 is hydrogen, lower alkyl, $(\text{CH}_2)_p\text{CO}_2\text{R}^3$, $(\text{CH}_2)_m$ (substituted phenyl), $(\text{CH}_2)_m$ (1- or 2-naphthyl), or $(\text{CH}_2)_m$ tetrazolyl; and

R^3 is hydrogen or lower alkyl.

24. The compound of claim 23 wherein R^1 is 1-naphthyl.

25. The compound of claim 23 wherein R¹ is 2-naphthyl.
26. The compound of claim 23 wherein R¹ is substituted naphthyl.
27. The compound of claim 26 wherein substituted naphthyl is 2-carboxy-1-naphthyl.
28. The compound of claim 23 wherein R¹ is substituted phenyl.
29. The compound of claim 28 wherein substituted phenyl is 2-substituted phenyl.
30. The compound of claim 29 wherein 2-substituted phenyl is (2-phenyl)phenyl.
31. The compound of claim 23 wherein A is alanine, valine, leucine cyclohexylalanine, phenylglycine or t-butylglycine.
32. The compound of claim 31 wherein R¹ is 1-naphthyl.
33. The compound of claim 31 wherein R¹ is 2-naphthyl.
34. The compound of claim 31 wherein R¹ is substituted naphthyl.
35. The compound of claim 34 wherein substituted naphthyl is 2-carboxy-1-naphthyl.

36. The compound of claim 31 wherein R¹ is 2-substituted phenyl.

37. The compound of claim 36 wherein 2-substituted phenyl is (2-phenyl)phenyl.

38. The compound of claim 23 wherein R² is (CH₂)₂CO₂R³ and n is 0.

39. The compound of claim 23 wherein R² is (CH₂)_mtetrazolyl and m is 0.

40. A pharmaceutical composition comprising a compound of claim 1 in combination with a pharmaceutically acceptable carrier.

41. A method for treating an autoimmune disease, comprising administering an effective amount of the pharmaceutical composition of claim 40 to a patient in need thereof.

42. A method of treating an inflammatory disease, comprising administering an effective amount of the pharmaceutical composition of claim 40 to a patient in need thereof.

43. A method of treating a neurodegenerative disease, comprising administering an effective amount of the pharmaceutical composition of claim 40 to a patient in need thereof.

44. A method of preventing ischemic injury to a patient suffering from a disease associated with ischemic injury, comprising administering an effective amount of the pharmaceutical composition of claim 40 to a patient in need thereof.

45. A method for expanding of hematopoietic cell populations or enhancing their survival, comprising contacting the cells with an effective amount of the pharmaceutical composition of claim 40.

46. The method of claim 45 wherein the cell populations are granulocytes, monocytes, erythrocytes, lymphocytes or platelets for use in cell transfusions.

47. A method of prolonging the viability of an organ that has been removed from a donor or isolated cells derived from an organ for the purpose of a future transplantation procedure, comprising applying an effective amount of the pharmaceutical composition of claim 40 to the organ or isolated cells to prolong the viability of the same as compared to untreated organ or isolated cells.

48. The method of claim 47 wherein the organ is an intact organ.

49. The method of claim 47 wherein the isolated cells are pancreatic islet cells, dopaminergic neurons, blood cells or hematopoietic cells.

50. Use of a compound of claim 1 as an active therapeutic substance.